ceive them both in the same plane, representing the experiment of Fig. 1, only with a greater number of circles. It is quite possible that very many experimenters cannot obtain the effect at all. In our own case we are much aided by the readiness with which the innervation of each eye can be carried on independently of the other. In fact, the phenomenon may be peculiar to our own experience alone, and may not be capable of verification by others. We shall be glad to know if it can be verified. J. H. HYSLOP.

Baltimore, Md., April 26.

Is the Rainfall increasing on the Plains?

I NOTICE a letter from Mr. Curtis in *Science* of April 20, calling attention to an error in the accepted Fort Leavenworth precipitation, due to the reckoning of snow (unmelted) as rain. I have looked up Schott's original manuscript, and find the large precipitation in January, 1871, entered "11.25″?" showing that the compiler was aware of a possible error. A careful examination of the original record shows that the true value is 1.20 for January, and 46.70 for the year. For 1872 the amount should be 51.65. I am inclined to think that Mr. Curtis is altogether too sweeping in his criticism. The probability of such an error having crept into the bulk of the Fort Leavenworth records is exceedingly small; and, moreover, the records nearly all the way through are partially checked by parallel records at neighboring stations.

It is certainly true, that, "if such errors as these exist in the records, it is surprising to find that the rainfall of Kansas is increasing." In this quotation from the letter, I have omitted a 'not' before 'surprising.' The reason is plain. Since 1873 the Fort Leavenworth records are not quoted, but only those of the Signal Service. Now, it is recognized that the exposure of the latter gauge will give too little rainfall; and, moreover, the measurement of melted snow is invariably too small. Both of these causes combine to render the records too small since 1873; and, if we assume that before then the records averaged five to ten inches too great, it is easy to see that there has been an enormous increase in rainfall, if the last fifteen years average more than the previous fifteen.

I wish to call attention to an exceedingly interesting point in this connection. During the last four years, Dr. Carpenter, at West Leavenworth, has reported from five to twenty-five inches more rain each year than the Signal Service two miles due east. Will not some scientist residing near Leavenworth take a special interest, and determine the possibility of such a large increase in precipitation in so short a distance? This will also have a most important bearing on the rainfall question. H. A. HAZEN.

Washington, D.C., April 21.

Chloride of Nitrogen.

IT seems to me worth while to call attention to the fact that the preparation of chloride of nitrogen by the electrolysis of a solution of ammonium chloride, announced in your last issue (p. 206) as a new discovery, has, as a matter of fact, long been known. This method of preparation forms, indeed, one of the stock lecture-experiments in many courses in chemistry. Incidentally it may be noted that within the last few weeks chloride of nitrogen has been made in considerable quantity in Göttingen by Dr. L. Gattermann, who has also for the first time made careful analyses of the substance. The difficulty involved in such an investigation will be appreciated to some extent when it is borne in mind that chloride of nitrogen is probably the most explosive chemical compound known. Dr. Gattermann's investigation has been spoken of in German newspapers as an act of heroism. IRA REMSEN.

Baltimore, April 28.

Christmas Customs in Newfoundland.

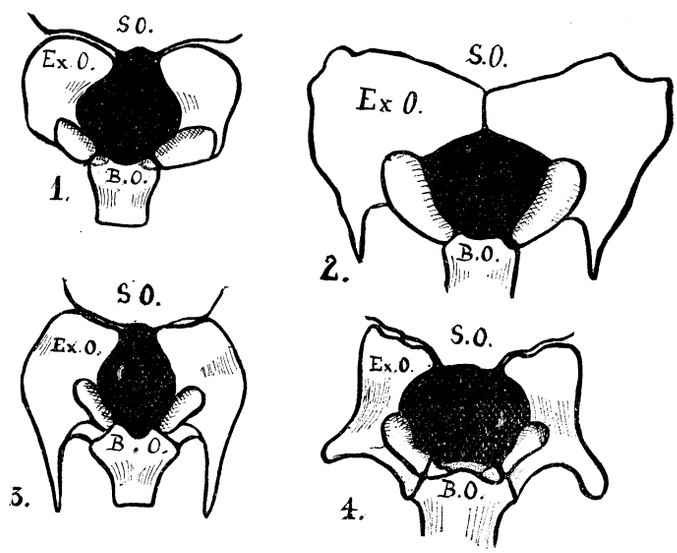
IN *Science* for Feb. 24, 1888, it is said, in the note on 'Christmas Customs in Newfoundland,' that the practice there described of tying a wren to a bush, and singing the rhymes there given, is not known in other places. It may interest your readers to know that fifteen years ago certainly, and probably at the present time, the country boys in County Clare and County Limerick, Ireland, if not in other counties, never let St. Stephen's Day pass without bringing round from house to house a bush adorned with ribbons, with on the top a struggling wren, or, if not a wren, some small bird for that day dignified by the name. The rhymes sung during the cruel ceremony were, I think, identical with those given in your paper. And in some way or other the coppers which the youths pocketed — given them at the houses they visited, whether on condition of releasing the wren or not — were supposed to do honor to the dying bird. W. F. STOCKLEY.

Fredericton, Canada, April 19.

Osteological Notes.

IT is often extremely difficult to determine with accuracy the boundaries of the four centres of ossification which characterize the occipital segment of the cranium in the various orders of the mammalia. The tendency to early co-ossification of these separate centres or bones, as they are generally described by anatomists, is for the most part so great, that it is impossible to obtain the information desired without the aid afforded by the collections of large museums; and, even with this advantage, perfect accuracy of description is scarcely possible in many cases, on account of the lack of material.

As a general rule, with notable exceptions, however, the four bones — viz., the supra-occipital, two ex-occipitals, and basi-occipital — individually contribute, in a greater or less degree, to the formation of the *foramen magnum*, the amount thus contributed by each depending very much upon the shape assumed by that opening (compare Figs. 1 and 4).



In both the odd-hoofed and pair-hoofed animals (*Ungulata*), in the elephants (*Proboscidia*), dugong and manatee (*Sirenia*), in the pangolins (*Edentata*), and in the opossum (*Marsupialia*), the ex-occipitals meet above, and thus shut out entirely the supra-occipital from participation in the margin of the foramen (Fig. 2).

In the remaining orders it may be said that the supra-occipital contributes from a third to a fourth of the border of the great opening, the lines of suture between this bone and the ex-occipitals running slightly upward and outward to a point corresponding with the level of the zygomatic process of the squamosal.

The ex-occipitals, with few exceptions, as in the dog (*Carnivora*) and in the armadillos (*Edentata*), supply the greater portion of the condyloid surface, the remainder being furnished by the basi-occipital.

The lines of suture which mark the separation of these two segments should be drawn from the margin of the *foramen magnum* downwards and outwards, bisecting the inner third of the condyle, to a point corresponding with the centre of the tympanic or auditory bulla (Fig. 4). In the cases where the condyles are the product of the ex-occipitals alone, as in the dog, the lines of separation must be drawn in the same general direction, but not so as to include any of the condyloid surface (Fig. 3). D. D. SLADE.

Museum of Comparative Zoölogy, Cambridge, Mass., March 30.